

A marked-up version of this claim appears in an appendix to this Amendment and Response.

Remarks

Claims 44-46 were pending up to this Amendment.

Claims 44-46 were rejected.

Claim 44 is cancelled without prejudice.

Claim 45 is amended.

Claims 45-46 are pending as of this Amendment.

I. Requirement of Substitute Specification

Per the Examiner's comments, Applicants are submitting a substitute specification including the original specification and claims. The format has been modified to comply with the current rules; specifically, paragraph numbers have been added.

II. Rejection of claims under 35 U.S.C. §103

The Examiner rejected claims 45-46 as being obvious in light of U.S. Patent No. 6,089,183 (Imai) in combination with U.S. Patent No. 5,084,413 (Fujita). Significantly, the Examiner rejected the claims under the same combination in the previous Office Action dated 11/21/00. In response to that previous rejection, Applicants argued that (1) the Examiner had misinterpreted Imai; (2) the Examiner failed to consider Imai as a whole; and (3) there is no motivation to combine Imai and Fujita, and there is in fact a motive to avoid their combination. (Amendment and Response to the Office Action dated November 21, 2000, submitted 5/21/00.) Even more significant, the Examiner admitted that "Applicants' argument . . . is persuasive." (Office Action of 7/31/01.)

First, Applicants contend that the previously-raised argument concerning motivation to avoid combining Imai and Fujita applies to *any* attempt to combine Imai and Fujita, including the Examiner's current attempt. The details supporting the motivation to avoid combination are addressed in Applicants' previous response. In summary, Fujita emphasizes the need to fill a hole with metal (Fujita at col. 1, ln. 10-25), while Imai indicates that filling its analogous hole with polysilicon is perfectly acceptable. (Imai at col. 17, ln. 57-58; FIG. 11.) Thus, Imai conflicts with the fundamental basis of Fujita's invention. As a result, one of ordinary skill in the art would be discouraged from combining the teachings of the two references. The Examiner has already agreed to this, admitting that there is "no motivation to combine the cited references." (Office Action of 7/31/01.) Therefore, the Examiner has already refuted the basis for rejection in this latest Office Action.

Second, concerning the Examiner's admitted failure to previously consider the references as a whole, Applicants assert that the Examiner has committed the same error in this latest Office Action. Specifically, the Examiner admitted that "specific portions" of Fujita and Imai were relied upon for the current rejection. (Office Action of 7/31/01 at 4.) However, the Examiner relied upon a specific portion of the references in the last Office Action rejections, and the Examiner admitted that doing so was improper. Accordingly, it follows that doing so for the current rejections is equally improper.

Case law cited in Applicants' previous response, and found by the Examiner to be persuasive, supports this notion. That case precedent indicates that the Examiner must consider the references as a whole. (*Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 308, 311 (Fed. Cir. 1983)) Moreover, when the prior art contains conflicting references, the ability of each reference to suggest solutions to one of ordinary skill in the art must be considered. (See *In re Young*, 927 F.2d 588, 18 U.S.P.Q. 1089 (Fed. Cir. 1991).) (A copy of *Young* is included in an appendix to this Amendment and Response.) Applicants contend that, considering the references as a whole highlights the conflict addressed above between Imai and a fundamental point of Fujita, and that such a conflict discourages combination of these references. Indeed, the

Examiner has already admitted that one of ordinary skill in the art would be so discouraged.

Third, concerning the previous misinterpretation of Imai, Applicants assert that the Examiner has committed a similar if not the same error in this latest Office Action. As in the previous Office Action, the Examiner focused (improperly, as addressed above) on a portion of Imai that addresses the formation of polymers. The Examiner concluded it would be obvious to apply the Imai excerpt to the teachings of Fujita. However, considering the Imai reference as a whole, as is required, places the Examiner's Imai excerpt in proper context. In that context, it becomes clear that Imai considers the formation of polymers to be a problem in the prior art. It also becomes clear that Imai offers an alternative that avoids the formation of polymers.

Specifically, Imai teaches adding  $\text{ClF}_3$  to the process chamber before a plasma is generated. Absent that plasma,  $\text{ClF}_3$  generates fluorine radicals that cover the inner wall of the apparatus, the electrodes, and the surface of the substrate. The carbon-based etchant gas is subsequently introduced, and a plasma is generated. The resulting carbon atoms or carbon hydride molecules react with the fluorine radicals, forming carbon-fluorine molecules, which are easily disposed of, rather than the undesirable polymers. (*Id.* at col. 12, ln. 61 - col. 13, ln. 10.) Imai explains further how the absence of polymers is beneficial by helping to prevent the formation of both dust and inwardly-sloping sidewalls of an etched hole. (*Id.* at col. 13, ln. 11-25.)

Thus, when considered as a whole, the Imai reference teaches away from polymer formation. As a result, one of ordinary skill in the art is discouraged from applying such a process to the teachings of other references, including Fujita. Applicants addressed this interpretation of Imai – including the aspects that teach away from combination -- in the previous response, and the Examiner found it to be “persuasive.” As a result, the Examiner has refuted the very interpretation used for the current rejection.

Therefore, the Examiner's current rejections cannot stand for the exact or similar reasons presented in the previous response and agreed to by the Examiner. Namely, (1) the Examiner has agreed that one of ordinary skill in the art is actively discouraged from

combining Imai and Fujita, thus the Examiner's current attempt to reject using this combination fails; (2) the Examiner has agreed that a failure to consider the references as a whole results in a failure to adequately support an obviousness rejection, yet the Examiner has admittedly failed once again to consider the references as a whole for the current rejection; and (3) the Examiner has admitted that a previous misinterpretation of Imai resulted in a failure to adequately support rejection, but the Examiner has currently misinterpreted Imai in a manner similar if not identical to the Examiner's previous attempt. As a result, the *prima facie* burden for rejection has not and cannot be met.

### CONCLUSION

In light of the above amendments and remarks, Applicants submit that claims 45-46 are allowable. If there are any matters which may be resolved or clarified through a telephone interview, the Examiner is requested to contact Applicants' undersigned attorney at the number indicated.

Respectfully submitted,

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Appendix I: Marked up version of claim

45. (Twice amended) [The method in claim 44] A method of providing a polymer between metal features on a wafer, comprising:

performing a deposition on said wafer in a site; and

etching in the same general site used to perform said deposition, wherein said step of etching further comprises etching generally simultaneously with performing said deposition.

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